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160

RAW SEQUENCE LISTING

DATE: 08/29/2003

PATENT APPLICATION: US/09/974,973A

TIME: 14:45:48

Input Set : A:\subseqlist 1533_1230001.txt

Output Set: N:\CRF4\08292003\I974973A.raw

5 <110> APPLICANT: Hanke, Paul D.
 9 <120> TITLE OF INVENTION: Feedback-Resistant Pyruvate Carboxylase Gene from Corynebacterium
 13 <130> FILE REFERENCE: 1533.1230001
 17 <140> CURRENT APPLICATION NUMBER: US 09/974,973A
 19 <141> CURRENT FILING DATE: 2001-10-12
 23 <150> PRIOR APPLICATION NUMBER: US 60/239,913
 25 <151> PRIOR FILING DATE: 2000-10-13
 29 <160> NUMBER OF SEQ ID NOS: 19
 33 <170> SOFTWARE: PatentIn version 3.0
 37 <210> SEQ ID NO: 1
 39 <211> LENGTH: 3474
 41 <212> TYPE: DNA
 43 <213> ORGANISM: Corynebacterium glutamicum
 47 <220> FEATURE:
 49 <221> NAME/KEY: CDS
 51 <222> LOCATION: (1)..(3474)
 55 <400> SEQUENCE: 1

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58	1 5 10 15	
60	cta gtg tcg act cac aca tct tca acg ctt cca gca ttc aaa aag atc	96
61	Leu Val Ser Thr His Thr Ser Ser Thr Leu Pro Ala Phe Lys Lys Ile	
62	20 25 30	
64	ttg gta gca aac cgc ggc gaa atc gcg gtc cgt gct ttc cgt gca gca	144
65	Leu Val Ala Asn Arg Gly Glu Ile Ala Val Arg Ala Phe Arg Ala Ala	
66	35 40 45	
68	ctc gaa acc ggt gca gcc acg gta gct att tac ccc cgt gaa gat cgg	192
69	Leu Glu Thr Gly Ala Ala Thr Val Ala Ile Tyr Pro Arg Glu Asp Arg	
70	50 55 60	
72	gga tca ttc cac cgc tct ttt gct tct gaa gct gtc cgc att ggt act	240
73	Gly Ser Phe His Arg Ser Phe Ala Ser Glu Ala Val Arg Ile Gly Thr	
74	65 70 75 80	
76	gaa ggc tca cca gtc aag gcg tac ctg gac atc gat gaa att atc ggt	288
77	Glu Gly Ser Pro Val Lys Ala Tyr Leu Asp Ile Asp Glu Ile Ile Gly	
78	85 90 95	
80	gca gct aaa aaa gtt aaa gca gat gct att tac ccg gga tat ggc ttc	336
81	Ala Ala Lys Lys Val Lys Ala Asp Ala Ile Tyr Pro Gly Tyr Gly Phe	
82	100 105 110	
84	ctg tct gaa aat gcc cag ctt gcc cgc gag tgc gcg gaa aac ggc att	384
85	Leu Ser Glu Asn Ala Gln Leu Ala Arg Glu Cys Ala Glu Asn Gly Ile	
86	115 120 125	
88	act ttt att ggc cca acc cca gag gtt ctt gat ctc acc ggt gat aag	432
89	Thr Phe Ile Gly Pro Thr Pro Glu Val Leu Asp Leu Thr Gly Asp Lys	

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93	Ser Arg Ala Val Thr Ala Ala Lys Lys Ala Gly Leu Pro Val Leu Ala			
94	145 150 155 160			
96	gaa tcc acc ccg agc aaa aac atc gat gac atc gtt aaa agc gct gaa	528		
97	Glu Ser Thr Pro Ser Lys Asn Ile Asp Asp Ile Val Lys Ser Ala Glu			
98	165 170 175			
100	ggc cag act tac ccc atc ttt gta aag gca gtt gcc ggt ggt ggc gga	576		
101	Gly Gln Thr Tyr Pro Ile Phe Val Lys Ala Val Ala Gly Gly Gly Gly			
102	180 185 190			
104	cgc ggt atg cgc ttt gtt tct tca cct gat gag ctc cgc aaa ttg gca	624		
105	Arg Gly Met Arg Phe Val Ser Ser Pro Asp Glu Leu Arg Lys Leu Ala			
106	195 200 205			
108	aca gaa gca tct cgt gaa gct gaa gcg gca ttc ggc gac ggt tgc gta	672		
109	Thr Glu Ala Ser Arg Glu Ala Glu Ala Ala Phe Gly Asp Gly Ser Val			
110	210 215 220			
112	tat gtc gaa cgt gct gtg att aac ccc cag cac att gaa gtg cag atc	720		
113	Tyr Val Glu Arg Ala Val Ile Asn Pro Gln His Ile Glu Val Gln Ile			
114	225 230 235 240			
116	ctt ggc gat cgc act gga gaa gtt gta cac ctt tat gaa cgt gac tgc	768		
117	Leu Gly Asp Arg Thr Gly Glu Val Val His Leu Tyr Glu Arg Asp Cys			
118	245 250 255			
120	tca ctg cag cgt cgt cac caa aaa gtt gtc gaa att gcg cca gca cag	816		
121	Ser Leu Gln Arg Arg His Gln Lys Val Val Glu Ile Ala Pro Ala Gln			
122	260 265 270			
124	cat ttg gat cca gaa ctg cgt gat cgc att tgt gcg gat gca gta aag	864		
125	His Leu Asp Pro Glu Leu Arg Asp Arg Ile Cys Ala Asp Ala Val Lys			
126	275 280 285			
128	ttc tgc cgc tcc att ggt tac cag ggc gcg gga acc gtg gaa ttc ttg	912		
129	Phe Cys Arg Ser Ile Gly Tyr Gln Gly Ala Gly Thr Val Glu Phe Leu			
130	290 295 300			
132	gtc gat gaa aag ggc aac cac gtt ttc atc gaa atg aac cca cgt atc	960		
133	Val Asp Glu Lys Gly Asn His Val Phe Ile Glu Met Asn Pro Arg Ile			
134	305 310 315 320			
136	cag gtt gag cac acc gtg act gaa gaa gtc acc gag gtg gac ctg gtg	1008		
137	Gln Val Glu His Thr Val Thr Glu Glu Val Thr Glu Val Asp Leu Val			
138	325 330 335			
140	aag gcg cag atg cgc ttg gct gct ggt gca acc ttg aag gaa ttg ggt	1056		
141	Lys Ala Gln Met Arg Leu Ala Ala Gly Ala Thr Leu Lys Glu Leu Gly			
142	340 345 350			
144	ctg acc caa gat aag atc aag acc cac ggt gca gca ctg cag tgc cgc	1104		
145	Leu Thr Gln Asp Lys Ile Lys Thr His Gly Ala Ala Leu Gln Cys Arg			
146	355 360 365			
148	atc acc acg gaa gat cca aac aac ggc ttc cgc cca gat acc gga act	1152		
149	Ile Thr Thr Glu Asp Pro Asn Asn Gly Phe Arg Pro Asp Thr Gly Thr			
150	370 375 380			
152	atc acc gcg tac cgc tca cca ggc gga gct ggc gtt cgt ctt gac ggt	1200		
153	Ile Thr Ala Tyr Arg Ser Pro Gly Gly Ala Gly Val Arg Leu Asp Gly			
154	385 390 395 400			

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156 gca gct cag ctc ggt ggc gaa atc acc gca cac ttt gac tcc atg ctg      1248
157 Ala Ala Gln Leu Gly Gly Glu Ile Thr Ala His Phe Asp Ser Met Leu
158          405          410          415
160 gtg aaa atg acc tgc cgt ggt tcc gac ttt gaa act gct gtt gct cgt      1296
161 Val Lys Met Thr Cys Arg Gly Ser Asp Phe Glu Thr Ala Val Ala Arg
162          420          425          430
164 gca cag cgc gcg ttg gct gag ttc acc gtg tct ggt gtt gca acc aac      1344
165 Ala Gln Arg Ala Leu Ala Glu Phe Thr Val Ser Gly Val Ala Thr Asn
166          435          440          445
168 att ggt ttc ttg cgt gcg ttg ctg cgg gaa gag gac ttc act tcc aag      1392
169 Ile Gly Phe Leu Arg Ala Leu Leu Arg Glu Glu Asp Phe Thr Ser Lys
170          450          455          460
172 cgc atc gcc acc gga ttt atc ggc gat cac cca cac ctc ctt cag gct      1440
173 Arg Ile Ala Thr Gly Phe Ile Gly Asp His Pro His Leu Leu Gln Ala
174 465          470          475          480
176 cca cct gcg gat gat gag cag gga cgc atc ctg gat tac ttg gca gat      1488
177 Pro Pro Ala Asp Asp Glu Gln Gly Arg Ile Leu Asp Tyr Leu Ala Asp
178          485          490          495
180 gtc acc gtg aac aag cct cat ggt gtg cgt cca aag gat gtt gca gca      1536
181 Val Thr Val Asn Lys Pro His Gly Val Arg Pro Lys Asp Val Ala Ala
182          500          505          510
184 cca atc gat aag ctg ccc aac atc aag gat ctg cca ctg cca cgc ggt      1584
185 Pro Ile Asp Lys Leu Pro Asn Ile Lys Asp Leu Pro Leu Pro Arg Gly
186          515          520          525
188 tcc cgt gac cgc ctg aag cag ctt ggc cca gcc gcg ttt gct cgt gat      1632
189 Ser Arg Asp Arg Leu Lys Gln Leu Gly Pro Ala Ala Phe Ala Arg Asp
190          530          535          540
192 ctc cgt gag cag gac gca ctg gca gtt act gat acc acc ttc cgc gat      1680
193 Leu Arg Glu Gln Asp Ala Leu Ala Val Thr Asp Thr Thr Phe Arg Asp
194 545          550          555          560
196 gca cac cag tct ttg ctt gcg acc cga gtc cgc tca ttc gca ctg aag      1728
197 Ala His Gln Ser Leu Leu Ala Thr Arg Val Arg Ser Phe Ala Leu Lys
198          565          570          575
200 cct gcg gca gag gcc gtc gca aag ctg act cct gag ctt ttg tcc gtg      1776
201 Pro Ala Ala Glu Ala Val Ala Lys Leu Thr Pro Glu Leu Leu Ser Val
202          580          585          590
204 gag gcc tgg ggc ggc gcg acc tac gat gtg gcg atg cgt ttc ctc ttt      1824
205 Glu Ala Trp Gly Gly Ala Thr Tyr Asp Val Ala Met Arg Phe Leu Phe
206          595          600          605
208 gag gat ccg tgg gac agg ctc gac gag ctg cgc gag gcg atg ccg aat      1872
209 Glu Asp Pro Trp Asp Arg Leu Asp Glu Leu Arg Glu Ala Met Pro Asn
210          610          615          620
212 gta aac att cag atg ctg ctt cgc ggc cgc aac acc gtg gga tac acc      1920
213 Val Asn Ile Gln Met Leu Leu Arg Gly Arg Asn Thr Val Gly Tyr Thr
214 625          630          635          640
216 ccg tac cca gac tcc gtc tgc cgc gcg ttt gtt aag gaa gct gcc agc      1968
217 Pro Tyr Pro Asp Ser Val Cys Arg Ala Phe Val Lys Glu Ala Ala Ser
218          645          650          655
220 tcc ggc gtg gac atc ttc cgc atc ttc gac gcg ctt aac gac gtc tcc      2016

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221	Ser	Gly	Val	Asp	Ile	Phe	Arg	Ile	Phe	Asp	Ala	Leu	Asn	Asp	Val	Ser	
222				660					665				670				
224	cag	atg	cgt	cca	gca	atc	gac	gca	gtc	ctg	gag	acc	aac	acc	gcg	gta	2064
225	Gln	Met	Arg	Pro	Ala	Ile	Asp	Ala	Val	Leu	Glu	Thr	Asn	Thr	Ala	Val	
226			675					680					685				
228	gcc	gag	gtg	gct	atg	gct	tat	tct	ggt	gat	ctc	tct	gat	cca	aat	gaa	2112
229	Ala	Glu	Val	Ala	Met	Ala	Tyr	Ser	Gly	Asp	Leu	Ser	Asp	Pro	Asn	Glu	
230		690					695				700						
232	aag	ctc	tac	acc	ctg	gat	tac	tac	cta	aag	atg	gca	gag	gag	atc	gtc	2160
233	Lys	Leu	Tyr	Thr	Leu	Asp	Tyr	Tyr	Leu	Lys	Met	Ala	Glu	Glu	Ile	Val	
234	705					710				715						720	
236	aag	tct	ggc	gct	cac	att	ctg	gcc	att	aag	gat	atg	gct	ggt	ctg	ctt	2208
237	Lys	Ser	Gly	Ala	His	Ile	Leu	Ala	Ile	Lys	Asp	Met	Ala	Gly	Leu	Leu	
238				725					730				735				
240	cgc	cca	gct	gcg	gta	acc	aag	ctg	gtc	acc	gca	ctg	cgc	cgt	gaa	ttc	2256
241	Arg	Pro	Ala	Ala	Val	Thr	Lys	Leu	Val	Thr	Ala	Leu	Arg	Arg	Glu	Phe	
242			740						745				750				
244	gat	ctg	cca	gtg	cac	gtg	cac	acc	cac	gac	act	gcg	ggt	ggc	cag	ttg	2304
245	Asp	Leu	Pro	Val	His	Val	His	Thr	His	Asp	Thr	Ala	Gly	Gly	Gln	Leu	
246		755					760				765						
248	gct	acc	tac	ttt	gct	gca	gct	caa	gct	ggt	gca	gat	gct	gtt	gac	ggt	2352
249	Ala	Thr	Tyr	Phe	Ala	Ala	Gln	Ala	Gly	Ala	Asp	Ala	Val	Asp	Gly		
250		770				775				780							
252	gct	tcc	gca	cca	ctg	tct	ggc	acc	acc	tcc	cag	cca	tcc	ctg	tct	gcc	2400
253	Ala	Ser	Ala	Pro	Leu	Ser	Gly	Thr	Thr	Ser	Gln	Pro	Ser	Leu	Ser	Ala	
254	785				790					795						800	
256	att	gtt	gct	gca	ttc	gcg	cac	acc	cgt	cgc	gat	acc	ggt	ttg	agc	ctc	2448
257	Ile	Val	Ala	Ala	Phe	Ala	His	Thr	Arg	Arg	Asp	Thr	Gly	Leu	Ser	Leu	
258				805					810				815				
260	gag	gct	gtt	tct	gac	ctc	gag	ccg	tac	tgg	gaa	gct	gtg	cgc	gga	ctg	2496
261	Glu	Ala	Val	Ser	Asp	Leu	Glu	Pro	Tyr	Trp	Glu	Ala	Val	Arg	Gly	Leu	
262			820					825					830				
264	tac	ctg	cca	ttt	gag	tct	gga	acc	cca	ggc	cca	acc	ggt	cgc	gtc	tac	2544
265	Tyr	Leu	Pro	Phe	Glu	Ser	Gly	Thr	Pro	Gly	Pro	Thr	Gly	Arg	Val	Tyr	
266		835					840						845				
268	cgc	cac	gaa	atc	cca	ggc	gga	cag	ttg	tcc	aac	ctg	cgt	gca	cag	gcc	2592
269	Arg	His	Glu	Ile	Pro	Gly	Gly	Gln	Leu	Ser	Asn	Leu	Arg	Ala	Gln	Ala	
270		850				855				860							
272	acc	gca	ctg	ggc	ctt	gct	gat	cgc	ttc	gag	ctc	atc	gaa	gac	aac	tac	2640
273	Thr	Ala	Leu	Gly	Leu	Ala	Asp	Arg	Phe	Glu	Leu	Ile	Glu	Asp	Asn	Tyr	
274	865				870					875						880	
276	gca	gcc	gtt	aat	gag	atg	ctg	gga	cgc	cca	acc	aag	gtc	acc	cca	tcc	2688
277	Ala	Ala	Val	Asn	Glu	Met	Leu	Gly	Arg	Pro	Thr	Lys	Val	Thr	Pro	Ser	
278			885						890						895		
280	tcc	aag	gtt	gtt	ggc	gac	ctc	gca	ctc	cac	ctg	gtt	ggt	gcg	ggt	gta	2736
281	Ser	Lys	Val	Val	Gly	Asp	Leu	Ala	Leu	His	Leu	Val	Gly	Ala	Gly	Val	
282			900					905					910				
284	gat	cca	gca	gac	ttt	gct	gca	gac	cca	caa	aag	tac	gac	atc	cca	gac	2784
285	Asp	Pro	Ala	Asp	Phe	Ala	Ala	Asp	Pro	Gln	Lys	Tyr	Asp	Ile	Pro	Asp	

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289 Ser Val Ile Ala Phe Leu Arg Gly Glu Leu Gly Asn Pro Pro Gly Gly
290          930          935          940
292 tgg cca gaa cca ctg cgc acc cgc gca ctg gaa ggc cgc tcc gaa ggc 2880
293 Trp Pro Glu Pro Leu Arg Thr Arg Ala Leu Glu Gly Arg Ser Glu Gly
294 945          950          955          960
296 aag gca cct ctg acg gaa gtt cct gag gaa gag cag gcg cac ctc gac 2928
297 Lys Ala Pro Leu Thr Glu Val Pro Glu Glu Glu Gln Ala His Leu Asp
298          965          970          975
300 gct gat gat tcc aag gaa cgt cgc aac agc ctc aac cgc ctg ctg ttc 2976
301 Ala Asp Asp Ser Lys Glu Arg Arg Asn Ser Leu Asn Arg Leu Leu Phe
302          980          985          990
304 ccg aag cca acc gaa gag ttc ctc gag cac cgt cgc cgc ttc ggc aac 3024
305 Pro Lys Pro Thr Glu Glu Phe Leu Glu His Arg Arg Arg Phe Gly Asn
306          995          1000          1005
308 acc tct gcg ctg gat gat cgt gaa ttc ttc tac gga ctg gtc gag 3069
309 Thr Ser Ala Leu Asp Asp Arg Glu Phe Phe Tyr Gly Leu Val Glu
310          1010          1015          1020
312 ggc cgc gag act ttg atc cgc ctg cca gat gtg cgc acc cca ctg 3114
313 Gly Arg Glu Thr Leu Ile Arg Leu Pro Asp Val Arg Thr Pro Leu
314          1025          1030          1035
316 ctt gtt cgc ctg gat gcg atc tct gag cca gac gat aag ggt atg 3159
317 Leu Val Arg Leu Asp Ala Ile Ser Glu Pro Asp Asp Lys Gly Met
318          1040          1045          1050
320 cgc aat gtt gtg gcc aac gtc aac ggc cag atc cgc cca atg cgt 3204
321 Arg Asn Val Val Ala Asn Val Asn Gly Gln Ile Arg Pro Met Arg
322          1055          1060          1065
324 gtg cgt gac cgc tcc gtt gag tct gtc acc gca acc gca gaa aag 3249
325 Val Arg Asp Arg Ser Val Glu Ser Val Thr Ala Thr Ala Glu Lys
326          1070          1075          1080
328 gca gat tcc tcc aac aag ggc cat gtt gct gca cca ttc gct ggt 3294
329 Ala Asp Ser Ser Asn Lys Gly His Val Ala Ala Pro Phe Ala Gly
330          1085          1090          1095
332 gtt gtc act gtg act gtt gct gaa ggt gat gag gtc aag gct gga 3339
333 Val Val Thr Val Thr Val Ala Glu Gly Asp Glu Val Lys Ala Gly
334          1100          1105          1110
336 gat gca gtc gca atc atc gag gct atg aag atg gaa gca aca atc 3384
337 Asp Ala Val Ala Ile Ile Glu Ala Met Lys Met Glu Ala Thr Ile
338          1115          1120          1125
340 act gct tct gtt gac ggc aag att gaa cgc gtt gtg gtt cct gct 3429
341 Thr Ala Ser Val Asp Gly Lys Ile Glu Arg Val Val Val Pro Ala
342          1130          1135          1140
344 gca acg aag gtg gaa ggt ggc gac ttg atc gtc gtc gtt tcc taa 3474
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353 <212> TYPE: PRT

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